Must include the cost estimators role. Cost risk associated with a project is critical to cost estimate accuracy and decision-making. Cost risk associated with changes are where cost estimator are frequently left out of the loop and should be included in the project managers team.
Response: Cost estimators are included in the PDT.

Add a reference section to Risk Management Plan – **REF8007**, and add Cost Risk Computer Program as a tool for Cost Contingency and Risk Management. Response: technical requirements are specified in the technical regs. The cost engineers on the PDT will be able to use this tool as needed.

Scope

This reference document describes Risk Management, a systematic process of identifying, analyzing, and responding to risk for the entire project life cycle. A risk analysis is performed for five categories of project risk: health and safety, scope, quality, schedule, and cost. The level of detail of the risk analysis and Risk Management Plan is based on the complexity of the project. The Risk Management Plan is a supporting plan that facilitates the implementation of the Project Management Plan (PMP). Risk Management, *Safety and Occupational Health – REF8016[REF8016]*, *Quality Management – REF8008[REF8008]*, *Communications – REF8006[REF8006]*, and *Change Management – REF8009[REF8009]* Plans are developed concurrently in the iterative Program/Project Planning Phase. [Consider ~~Construction field~~ Staffing as an additional category. Also see comment on 'Severity Rating Table'] Response: staffing is considered a component of all risk categories included in the reference document.

~~In accordance with AR 385-10, Army Safety Program, a risk analysis will be performed for all USACE managed projects.~~ Response: accepted When a project is determined to be other than low-risk, as defined in the risk management plan, the risk must be identified, and associated control procedures defined in the PMP. Only the responsible district or division Commander may provide final PMP approval in the event of an overall project risk rating of high, or very high, respectively.

Responsibility

The Project Manager (PM) is responsible for initiating the development of the Risk Management Plan.

The Project Delivery Team (PDT) is responsible for participating in the development of the Risk Management Plan by identifying and defining potential risks and appropriate responses to risks for the project.

Distribution

Project Manager (PM)

Project Delivery Team (PDT)

Ownership

The BP/P2 Configuration Manager is responsible for ensuring that this document is necessary and that it reflects actual practice.

Risk Management Plan Format & Content:

- Identify what the risk management activity is in WBS and describe how often risk management will be performed throughout the project life cycle.
- Describe the budget for risk management plan development and monitoring.
- Customer and Stakeholder Risk Thresholds – Describe the amount of risk that is acceptable.
- Methodology:

  a. Identify Risks and Characteristics

  List of Risks

  Triggers

  b. Evaluation and Analysis of Risks - Determine Probability and Severity Ratings

  c. Overall Risk Table

  d. Describe Highest-Level Risk

  e. Describe Risk Response Control Procedures - Document identified risks, descriptions, causes, what is affected in the WBS, and impact on project objectives, risk owner and responsibility, agreed response to risk, and expected result of response.

- Risk Monitoring – Describe how the PDT will keep track of identified risks, identify new risks, determine if agreed responses to risks have been executed, and evaluate the effectiveness of risk responses to reduce identified risks. .

Development of Risk Management Plan:

Methodology

- Address Risk Management in the Activity Development Process and Resource Estimate Development Process by insuring an activity is added in the WBS and budget for the activity.

- Initiate risk management assessment meeting.

- Identify ~~health and safety hazards and~~ Response: accepted risks to project scope, quality, schedule, and cost.

Risks	Triggers	Potential Impact
Example: Failure to meet a milestone could represent an early warning that a schedule delay may occur.	Milestone exceeded	Schedule will be delayed

Note: Inputs to Risk Identification include but are not limited to the following:

- All project background information

- Customer quality expectations

- Customer and stakeholder risk tolerance(s)

- Historical records

- Past Lessons Learned

- Scope

- WBS

- Network Diagram

- Cost & Time Estimates

- Project Team Personnel Assignments

Note: ~~Safety hazards are potential sources of danger that could be faced while performing a project activity, including environmental and human factors. In addition, c~~ Response: accepted Consider potential risks that could be associated with accomplishing the project's activities, schedule, and fiscal resources

- Evaluate and analyze each hazard and risk identified above. Determine the appropriate probability rating and severity rating (should the hazard/risk event occur) for each hazard and risk from the tables below.

Note: Exercising judgment on how to eliminate or reduce hazards and risks to lessen the overall project impacts is inherent in the risk assessment process. Use the descriptions provided below to describe hazard and risk probabilities and severities.

Probability Rating Table. Based on the likelihood that an event will occur.

Probability	Description
Frequent	Occurs often, continuously experienced.
Occasional	Occurs several times.
Likely	Occurs sporadically.
Seldom	Unlikely, but could occur at some time.
Unlikely	Can assume it will not occur.

Severity Rating Table. Based on the degree of injury, property damage, or other mission-impairing factors, to include the degree of impact on the project's Baseline cost, schedule, scope, and quality thresholds as described in the table below. [Cost increases of 5-10% are **NOT** 'marginal' for military projects. Develop separate table for military projects.] Response: the chart is a sample. The PDT may set the risk thresholds where they need to be in accordance with the project.

	Negligible	Marginal	Critical	Catastrophic
~~**Health and Safety**~~	~~First aid or minor medical treatment~~	~~Minor injury, lost workday accident~~	~~Permanent partial disability, temp. total disability > three months~~	~~Death or permanent total disability~~ Response: accepted
Cost	Insignificant cost increase	5-10% cost increased	10-20% cost increase	> 20% cost increase
Schedule	Insignificant schedule slippage	5-10% schedule slippage	10-20% schedule slippage	> 20% Overall Project schedule slippage
Scope	Scope change barely noticeable	Minor areas of scope are affected	Scope change unacceptable to customer	Project end item is effectively useless
Quality	Quality degradation barely noticeable	Quality reduction requires customer approval	Quality reduction unacceptable to customer	Project end item is effectively unusable

- Enter probability and severity ratings from above into the Overall Risk Table below to characterize overall project risk as E, H, M, or L (described below) for each of the four~~ive~~ Response: accepted risk categories.

  E (Extremely High)- Loss of ability to accomplish project.

  H (High)- Significantly degrades capabilities to accomplish project.

  M (Moderate)- Degrades project accomplishment capabilities.

  L (Low)- Little or no impact on project accomplishment.

Example of Overall Risk Table.

	~~Health and Safety Hazard Probability~~					
		~~Frequent~~	~~Occasional~~	~~Likely~~	~~Seldom~~	~~Unlikely~~
~~SEVERITY~~ Response: accepted	~~Catastrophic~~	~~E~~	~~E~~	~~H~~	~~H~~	~~M~~
	~~Critical~~	~~E~~	~~H~~	~~H~~	~~M~~	~~L~~
	~~Marginal~~	~~H~~	~~M~~	~~M~~	~~L~~	~~L~~
	~~Negligible~~	~~M~~	~~L~~	~~L~~	~~L~~	~~L~~
	Scope Risk Probability					
		Frequent	Occasional	Likely	Seldom	Unlikely
SEVERITY	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L
	Schedule Risk Probability					
		Frequent	Occasional	Likely	Seldom	Unlikely
SEVERITY	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L
	Cost Risk Probability					
		Frequent	Occasional	Likely	Seldom	Unlikely
SEVERITY	Catastrophic	E	E	H	H	M

	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L
	Quality Risk Probability					
		Frequent	Occasional	Likely	Seldom	Unlikely
SEVERITY	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

- Reference should be made to Safety and Occupational Health Plan – REF8016. Response: accepted. See reworded master document. Evaluate the above results along with the results of the safety and health risk Response: accepted. See reworded master document. and determine the highest-level risk of all five categories. Overall project risk level is determined by the highest risk rating. Decisions to accept risks must be made at a level equal to the degree of risk. Project and Program Managers and Commanders must weigh the risks against the benefits of performing an activity.

Note: Unnecessary risk can be as great a hindrance to project completion as any other factor. The levels at which USACE risk decisions can be made are: E (extremely high)- division commander; H (high)- district commander; M (moderate)- program manager; and L (low)- project manager. In all cases, the benefits of taking the risk must be greater than the possible consequences.

- Establish Risk Control procedures for activities that are identified as either M moderate, H high, and E extremely high. Determine and document action(s) required reducing or eliminating hazards and risks. Risk Control Response - This information could be displayed as follows.

Risk	Description	Cause	WBS Item Affected	Impact on Project Objectives	Risk Owner and Responsibility	Agreed Response to Risk	Expected Result of Response

Note: Controls may be as simple as referencing an SOP or conducting a job-site briefing.

- Risk Monitoring is conducted during the Project Execution & Control Phase. See *Project Execution and Control – PROC3000[PROC3000]* and *Change Management – PROC3010[PROC3010]* processes, as well as *Safety and Occupational Health Plan – REF8016[REF8016]* and *Quality Management Plan – REF8008[REF8008]*.

The following flowchart depicts the phases of the risk management process.